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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,899	10/02/2003	Joseph Consolini	6601P033	2351

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EXAMINER	
EDWARDS, LAURA ESTELLE	
ART UNIT	**PAPER NUMBER**
1734	

DATE MAILED: 03/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/678,899	CONSOLINI ET AL.	
	Examiner	Art Unit	
	Laura Edwards	1734	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-27 is/are pending in the application.

4a) Of the above claim(s) 9-27 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-8 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-8, drawn to a first wafer processing system, classified in class 118, subclass 501.

II. Claims 9-12, drawn to a second wafer recovery system, classified in class 118, subclass 600.

III. Claims 14-27, drawn to photoresist coating method, classified in class 427, subclass 240.

The inventions are distinct, each from the other because of the following reasons:

The invention of Group II is independent and distinct from the invention of Group I in that the invention of Group II is to wafer recovery system requiring a resist recovery container coupled to the bowl in which the wafer is processed wherein solvent used at a part of a bowl wash process is effected after photoresist is propelled to the interior surface of the bowl such that excess photoresist is recovered via a recovery drainpipe in the container and the drainpipe includes a block. The invention of Group I does not require such a combination of elements.

Inventions III and I are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus as claimed can be used for a materially different process other than applying a photoresist composition on the wafer such as an etchant on the substrate on the substrate.

Inventions III and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus as claimed can be used for a materially different process other than applying a photoresist composition on the wafer such as a cleaning agent on the wafer.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Mr. Van Zandt on 2/24/05 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-8. Affirmation of this election must be made by applicant in replying to this Office action. Claims 9-27 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

Claims 4-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 4, line 2, "bowl level" lacks antecedent basis.

In claims 5-7, it is unclear how a solvent rich environment being maintained within the drainpipe constitutes structural limitation. These claims appear to recite process limitations. Furthermore, there is no solvent supply means recited in claim 1 to enable solvent to be supplied to the system.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, and 4-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamasaka (US 5,997,653).

Yamasaka teaches a system comprising a bowl (20) having an interior region and an interior surface; a wafer platform (10) disposed within the interior region of the bowl; a wafer

spindle (11,12) coupled to the wafer platform, the wafer spindle being capable of spinning the wafer platform such that an excess amount of chemical solution or washing agent deposited upon a wafer placed upon the wafer platform is propelled to the interior surface of the bowl; and a perimeter drain (25) formed within the bowl such that the excess amount of chemical solution propelled from the wafer proceeds through the perimeter drain to a chemical solution recovery [container] (see col. 6, lines 7-17). With respect to the system being used with a photoresist, the photoresist has been given no patentable weight because Applicants only recite a system including a spindle capable of use with a photoresist being applied to the wafer such that the photoresist is not required.

With respect to claim 2, see drainpipe (25).

With respect to claim 4, the bowl (20) and perimeter drain (25) are capable of moving up and down as shown in Fig. 3 such that the perimeter drain is capable of being positioned relative to the rotating wafer.

With respect to claims 5-7, these claims have been given no patentable weight because they recite process limitations.

With respect to claim 8, the bowl (20) that surrounds the wafer constitutes an additional drain having drainpipe (26). Also see innermost drain area (21a).

Claims 1, 2, and 4-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Nakamori et al (US 6,589,338).

Nakamori et al teach a system comprising a bowl (43) having an interior region and an interior surface; a wafer platform (31) disposed within the interior region of the bowl; a wafer

spindle (35, 32) coupled to the wafer platform, the wafer spindle being capable of spinning the wafer platform such that an excess amount of chemical solution or washing agent deposited upon a wafer placed upon the wafer platform is propelled to the interior surface of the bowl; and a perimeter drain (42, 50) formed within the bowl such that the excess amount of chemical solution propelled from the wafer proceeds through the perimeter drain to a chemical solution recovery container (55). With respect to the system being used with a photoresist, the photoresist has been given no patentable weight because Applicants only recite a system including a spindle capable of use with a photoresist being applied to the wafer such that the photoresist is not required.

With respect to claim 2, see drainpipe (50).

With respect to claim 4, the bowl (43) and perimeter drain (42) are capable of moving up and down as shown in Fig. 2 such that the perimeter drain is capable of being positioned relative to the rotating wafer.

With respect to claims 5-7, these claims have been given no patentable weight because they recite process limitations.

With respect to claim 8, the bowl (43) which surrounds the wafer constitutes an additional drain having drainpipe (51).

Claims 1-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Chiu et al (US 6,807,972).

Chiu et al teach a system comprising a bowl (200) having an interior region and an interior surface; a wafer platform (222) disposed within the interior region of the bowl; a wafer

spindle (area 221) coupled to the wafer platform, the wafer spindle being capable of spinning the wafer platform such that an excess amount of chemical solution or washing agent deposited upon a wafer placed upon the wafer platform is propelled to the interior surface of the bowl; and a perimeter gutter or drain (216) formed within the bowl such that the excess amount of chemical solution propelled from the wafer proceeds through the perimeter drain to a chemical solution recovery [container] (col. 5, lines 5-9). With respect to the system being used with a photoresist, the photoresist has been given no patentable weight because Applicants only recite a system including a spindle capable of use with a photoresist being applied to the wafer such that the photoresist is not required.

With respect to claim 2, see drainpipe (area 204).

With respect to claim 3, see blocking means (214).

With respect to claim 4, the lower portion of the bowl (200) including the perimeter gutter or drain (216) are capable of moving up and down as shown in Fig. 2a such that the perimeter drain is capable of being positioned relative to the rotating wafer.

With respect to claims 5-7, these claims have been given no patentable weight because they recite process limitations.

With respect to claim 8, the lower portion of the bowl (200) immediately surrounding the spindle appears to provide for additional drainage.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 2, and 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mayer et al (US 6,713,122) in view of the ASPA (Admitted State of the Prior Art).

Mayer et al teach a system comprising a bowl (201; Fig. 3) having an interior region and an interior surface; a wafer platform (219) disposed within the interior region of the bowl; a wafer spindle (not shown; see col. 10, lines 63-65) coupled to the wafer platform, the wafer spindle being capable of spinning the wafer platform such that an excess amount of chemical solution or washing agent deposited upon a wafer placed upon the wafer platform is propelled to the interior surface of the bowl; and a perimeter duct or drain (227) formed within the bowl such that the excess amount of chemical solution propelled from the wafer proceeds through the perimeter drain. With respect to the system being used with a photoresist, the photoresist has been given no patentable weight because Applicants only recite a system including a spindle capable of use with a photoresist being applied to the wafer such that the photoresist is not required. Mayer et al are silent concerning the duct or drain be coupled to a collection container to recover the spent chemicals. However, it was known in the art, at the time the invention was

made, to provide a collection container connected to the drain of a wafer treating system so as to enable possible reuse of spent chemical treating solution or collection of the chemicals for safe hazardous waste removal as evidenced by the ASPA (see instant specification, pages 1-3 and Fig. 1). In light of the teachings of the ASPA, it would have been within the purview of one skilled in the art to provide a collection container in fluid communication with the perimeter duct or drain of the Mayer et al system to enable the chemicals to be recycled or safely disposed thereof.

With respect to claim 2, see drainpipe (area extending from manifold 229).

With respect to claim 4, the wafer platform is capable of moving up and down as shown in Fig. 2 such that the perimeter drain can be disposed adjacent the rotating wafer.

With respect to claims 5-7, these claims have been given no patentable weight because they recite process limitations.

With respect to claim 8, the lower portion of the bowl (201) immediately surrounding the spindle appears to provide for additional drainage (209).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura Edwards whose telephone number is (571) 272-1227. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Fiorilla can be reached on (571) 272-1187. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Laura Edwards
Primary Examiner
Art Unit 1734

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March 10, 2005